

## Patent Claims

- 5 1. A molding comprising polyacetal with wall thickness differences and with microcellular structure, where the mechanical properties and/or chemicals resistance of the molding is/are better than that/those of a corresponding solid molding, where the difference between the minimum wall thickness of the molding and its maximum wall thickness is at least 1 mm, and where the microcellular structure is 10 composed of at least 70% of spherical cells, where the term spherical encompasses all of the cells for which the ratio of the largest dimension to the smallest dimension of the cells, measured through the center of gravity of the respective cell, is not more than 4.
- 15 2. The molding as claimed in claim 1, wherein the cell size of the microcellular structure is in the range from 1 to 100  $\mu\text{m}$ .
- 20 3. The molding as claimed in claim 1 or 2, wherein the molding composition used to produce the molding comprises at least 40% by weight of polyacetals.
- 25 4. The molding as claimed in one or more of the preceding claims, wherein the density of the molding is in the range from 1.0 to 1.6  $\text{g/cm}^3$ .
- 30 5. The molding as claimed in one or more of the preceding claims, whose density is lower, by from 2 to 50%, than that of the molding composition used to produce the molding.
- 35 6. The molding as claimed in one or more of the preceding claims, which has an overtorque of at least 7.8 Nm.
7. The molding as claimed in one or more of the preceding claims, which has a screw-insertion torque of at least 2.5 Nm.
8. The molding as claimed in one or more of the preceding claims, which has no stress cracks within 10 minutes after 5 minutes of

immersion into 50% strength sulfuric acid.

- 5      9.      The molding as claimed in one or more of the preceding claims, wherein the polyacetal is a copolymer.
- 10      10.      The molding as claimed in one or more of the preceding claims, wherein the molding encompasses metal.
11.      The molding as claimed in one or more of the preceding claims, which has sharp corners, edges, ribs, fillets, screw domes, snap-action hooks, and/or film hinges.
12.      The molding as claimed in one or more of the preceding claims, which has at least one perforation.
- 15      13.      The molding as claimed in claim 12, wherein the area of the perforations, based on the total of the area of all of the perforations, is at least 1 mm<sup>2</sup>.
- 20      14.      The molding as claimed in one or more of the preceding claims, which has an average wall thickness in the range from 0.1 to 100 mm.
- 25      15.      The molding as claimed in one or more of the preceding claims, wherein the difference between its minimum wall thickness and its maximum wall thickness is at least 3 mm.
- 30      16.      A process for producing moldings as claimed in one or more of the preceding claims 1 to 15, which comprises producing a homogeneous melt encompassing polyacetal and dispersing, in the melt encompassing polyacetal, up to 30% by weight of a fluid which under the plastifying conditions is above its critical point, and charging the mixture to an injection mold.
- 35      17.      The process as claimed in claim 16, wherein the amount of the fluid is selected in such a way that the viscosity of the melt encompassing polyacetal with dispersed fluid is up to 60% below the viscosity of the pure melt encompassing polyacetal at the same temperature

and shear.

18. The process as claimed in claim 16 or 17, wherein the clamping pressure for the injection mold is in the range from 500 N (0.05 t/cm<sup>2</sup>) to 10 000 N (1 t/cm<sup>2</sup>) and/or at most 30% of the clamping pressure used when using a pure melt encompassing polyacetal.
19. The process as claimed in claim 16, 17, or 18, wherein the fluid used comprises nitrogen or carbon dioxide.
20. The use of a molding as claimed in one or more of claims 1 to 15 in automotive construction, in the construction industry, or in the sanitary sector.